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ABSTRACT

This collection of activities for pupils in elementary school mathematics is designed to help pupils develop skills without the usual negatives that accompany drill and practice. The practice provided is for the skills that need to be learned in order to attain the goal of acquiring the ability to solve problems. Each activity opens with a concise educational purpose. Several instructions or examples of the activity are provided for the teacher to maximize the chances for success with in-classroom use. (MP)

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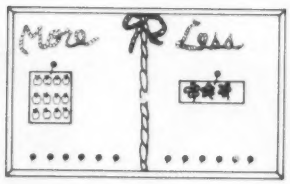
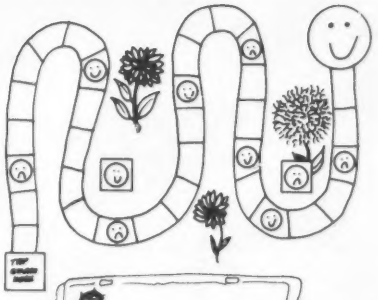
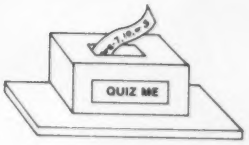
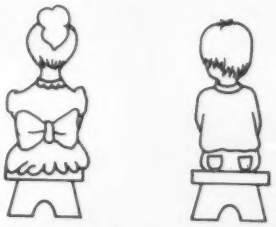
MATHEMATICS INSTRUCTIONAL MATERIALS

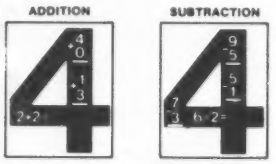
Elementary Grade Level

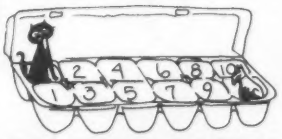


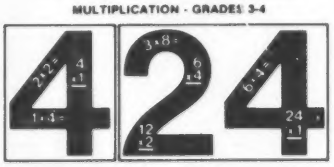


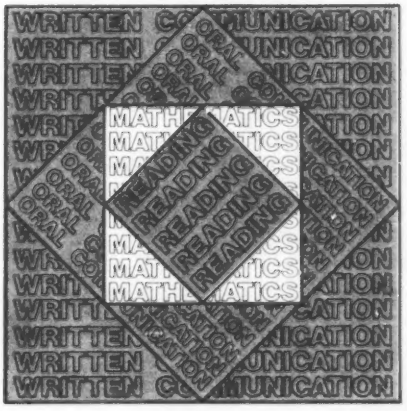


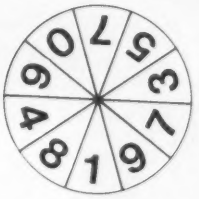


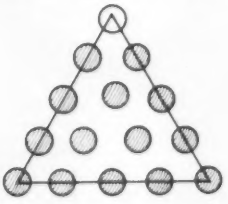












July, 1981

Program Planning and Development
Local Educational Agency Services

U.S. DEPARTMENT OF EDUCATION
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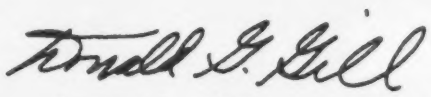
FOREWORD

Much attention has been focused on the learning of basic skills in mathematics. The ultimate basic skill in mathematics is the ability to solve problems, but there are other skills that must be learned in order to attain this goal. Practice is necessary to sharpen these skills, but practice in mathematics need not be dull and unimaginative. This book of activities for the K-6 student contains games and activities that allow students to practice and develop mathematical skills without the negatives that usually accompany drill and practice.

For additional copies of this publication, contact the Program Planning and Development Section, Illinois State Board of Education, 100 North First Street, Springfield, Illinois 62777.



Donald G. Gill
State Superintendent of Education

TO THE TEACHER

There are many other sources of mathematics activities, games, and information readily available to the classroom teacher. Listed, in no particular order, are some of these sources.

1. Other teachers and administrators in your building and district. Learn to share with your associates.

2. Mathematics publications. State and national mathematics organizations have publications that contain mathematics games, activities, and information for elementary and secondary teachers. Some of these publications are:

   a. The Illinois Mathematics Teacher from the Illinois Council of Teachers of Mathematics.

   b. The Arithmetic Teacher (devoted to the elementary teacher) from the National Council of Teachers of Mathematics.

   c. The Mathematics Teacher (devoted to the junior high and high school teacher) from the National Council of Teachers of Mathematics.

   The publications are available at most libraries or they can be obtained with membership in the respective organizations. NOTE: Other content areas have similar organizations and publications.

3. Colleges and universities in your area. Mathematics and/or education departments at the universities are eager to work with school districts. Some have mathematics newsletters that contain much valuable information for educators. The universities sponsor math contests for students, open house activities, and opportunities for improvement in mathematics instruction for teachers.

4. Workshops and conferences. Many local and state conferences focusing on mathematics are held every year. Attend these meetings and bring back information to share with your colleagues.

5. Mathematics organizations. There are national, state and local mathematics organizations that are beneficial for teachers.

6. The Illinois State Board of Education. The State Board of Education has materials and information to assist all teachers.

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NUMBER BASEBALL

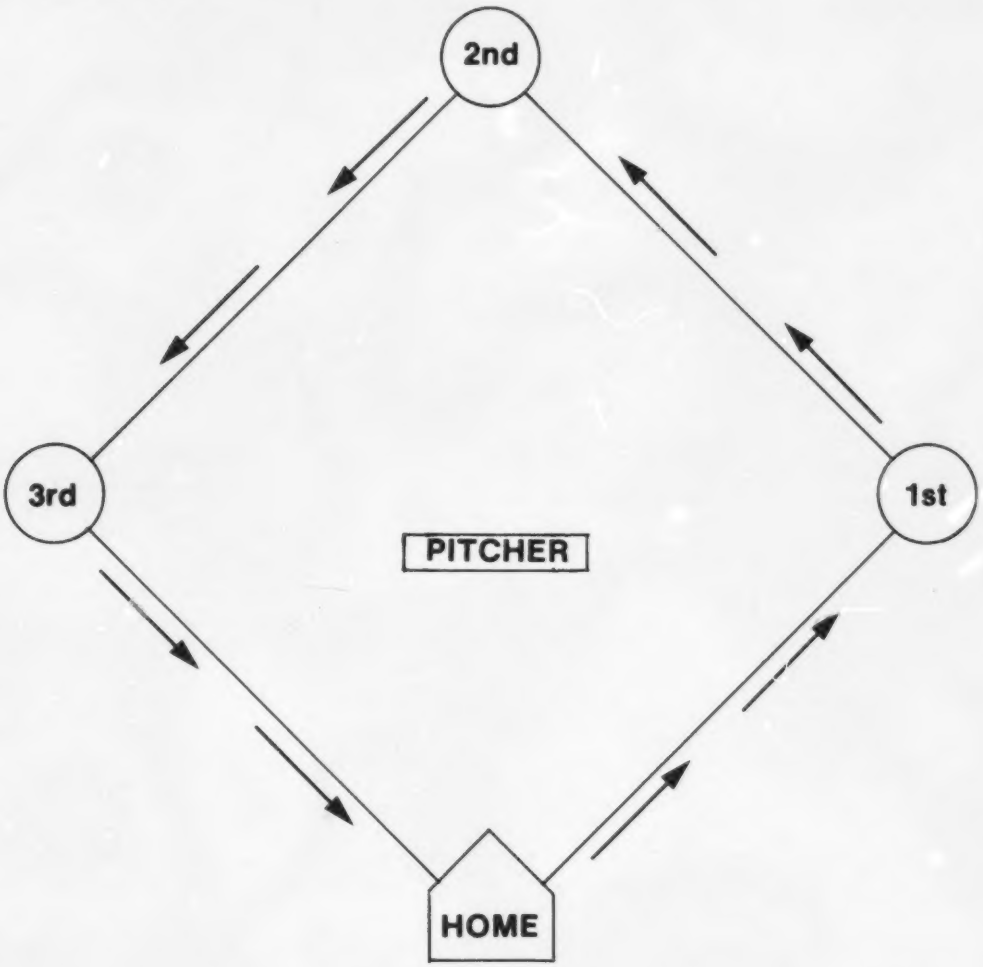
Purpose: To provide practice in the identification of cardinal numerals (one through twenty).

---

1. Designate home, first, second, and third bases.

2. Select a pitcher, a first baseman, a second baseman, and a third baseman. Provide each with a stack of cards on which the numerals from one to twenty have been printed.

3. Select a batter. The pitcher selects the first card to be identified by the batter. If it is correctly identified, the batter moves to first base, where the first baseman gives him or her a card to be identified. Play continues in this manner until the player misses or reaches home. If the player misses, he or she is out and the next batter is up.



BACK-A-TACK

Purpose: To provide meaningful usage of simple number combinations.

---

1. Make cards with numerals from one to ten.
2. Pin a numeral on the back of one child.
3. Have other children give combinations which make this numeral. The child tries to guess the numeral.
4. Continue the game until all children have had a turn.

- -

PICNIC BASKET

Purpose: To broaden the concepts of quantity and meaning of cardinal numbers.

---

1. Secure a basket to be used for the picnic basket. Make "food" for the basket by cutting sandwiches, cookies, candy, relishes, etc. from construction paper. Print a numeral from two to ten on each piece.
2. On a table place duplicate food with dots matching the printed numerals.
3. Each child takes a food from the picnic basket and matches it to the one with corresponding dots.
4. After each child has had a turn, lead the children in singing one of their favorite picnic songs.

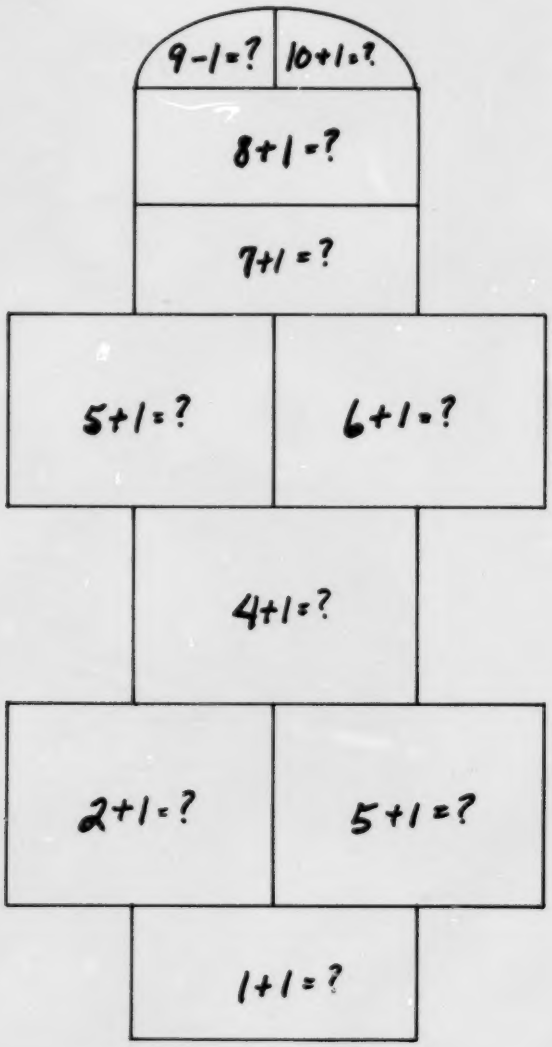
Variation: This idea could be used for a manipulative bulletin board.

NUMBER HOPSCOTCH

Purpose: To provide opportunity for meaningful drill of simple number facts.

---

1. Draw a hopscotch pattern with number facts in each square on the floor.
2. Have children choose sides and keep a team score.
3. For every answer a child gets correct, give the team one point.
4. If a child misses any, his or her score is rejected. The team with the highest score wins.



THE PEOPLE ON THE BUS

Purpose: To provide opportunity for numeral recognition and meaningful drill with written numerals.

---

1. Have children arrange chairs in rows to form a make-believe bus.

2. Select one child to be the "bus driver" and give him or her a collection of cards numbered from one to twenty.

3. Select one child to be the "unseated passenger." As children sing one verse of "People on the Bus*," the unseated passenger moves up and down the row. When the singing stops, the unseated passenger stops beside a seated passenger.

4. The bus driver flashes a number card. If the "unseated passenger" names it first, he or she gets the seat and the child whose chair is taken becomes the "unseated passenger." If the seated passenger names it first, "it" moves on for another turn and the game is repeated.

(* This song is found in SINGING ON OUR WAY of OUR SINGING WORLD Series.)

- -

HOW MANY BOUNCES?

Purpose: To provide practice in counting.

---

1. Seat children in a semi-circle.

2. Call on one child to announce a numeral between one and twenty (for example, eleven). The child then bounces the ball a certain number of times (for example, six) between these two numerals.

3. As the ball is bouncing, all other children in the game silently count the number of bounces.

4. When the bouncer stops, he or she calls on another player to bounce the ball the number of times (in the example, five) required to make the announced numeral. If the new bouncer correctly completes the combination, he or she may announce a new numeral, and the game continues.

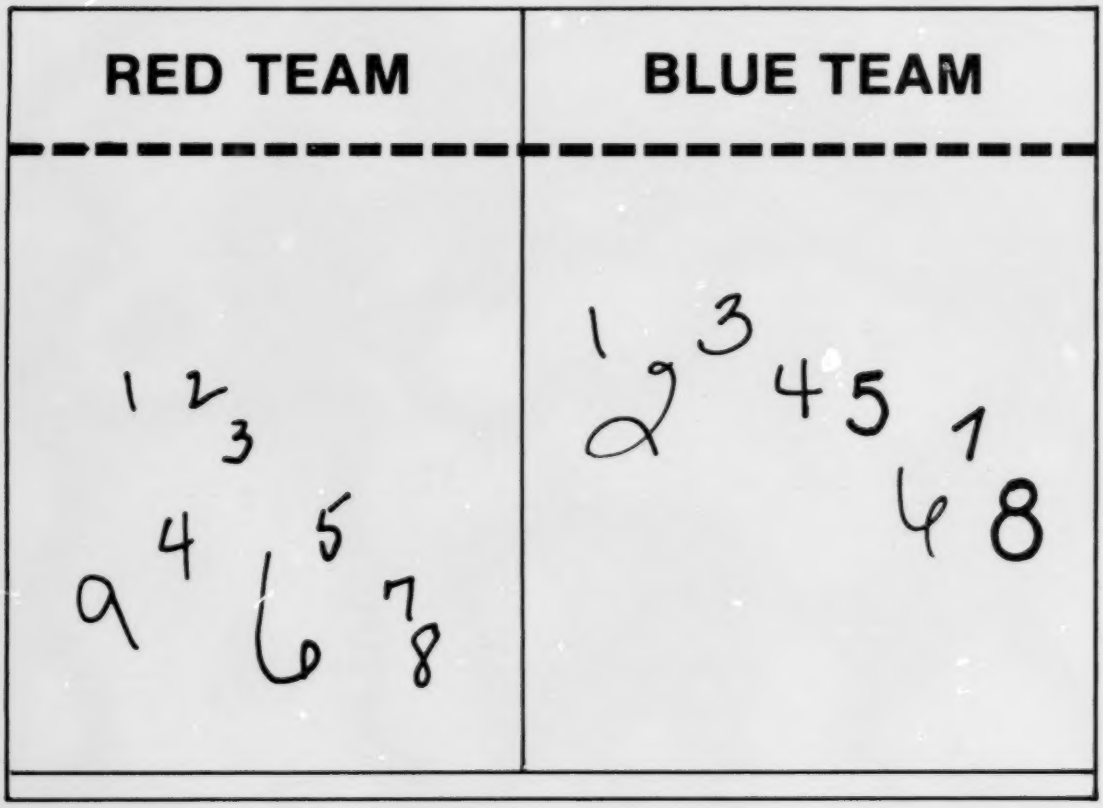
RELAY RACE

Purpose: To provide practice in counting from one to fifteen.

---

1. Divide the group into teams. Give each team a piece of chalk.

2. At the signal, "Start!" - the first players on each team race to the blackboard and write 1 on the board. Each then races back to his or her team, gives the chalk to the next child who goes to the board to write 2, and so on. The team which writes 15 on the board first wins the game.



QUIZ ME

Purpose: To develop a mathematical vocabulary. To develop understanding of size, shape, and quantity relationship.

---

1. On sentence strips write questions such as:

   1) Which is larger--an egg or a watermelon?

   2) Which is smaller--a birdhouse or a hotel?

   3) Which is more--7, 10, or 3?

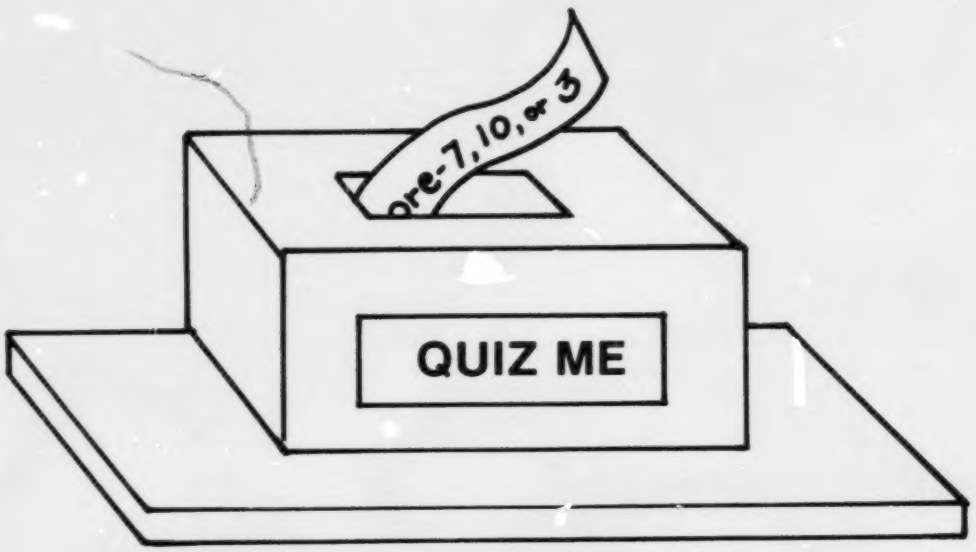
   4) Which is square--a box or a basketball?

   5) Which is round--a ball or a tree?

   Place these questions in a box labeled "QUIZ ME."

2. Divide the group into two teams. Each team takes turns sending a child to the center of the circle where the teacher sits holding the Quiz-Me box. From the box, the child selects a problem to be read to him or her by the teacher. If the child answers the question correctly, he or she scores one point for the team. The team with the largest score wins the game.

3. After children have played this game several times, they will enjoy making up new problems for the Quiz-Me box.



HUMPTY DUMPTY SAT ON A WALL

Purpose: To provide practice in associating cardinal numbers with the concept they represent.

---

1. Select one child to be Humpty Dumpty. Give the child a stack of cards on which numerals from one to twenty have been printed.

2. Give other children a stack of cards on which pictures of objects such as fish, trees, lemons, etc., in number varying from one to twenty have been drawn.

3. Humpty Dumpty sits in the center of the circle as other children try to give him a "great fall" by holding up one picture card at a time for him to match with the corresponding number card from his stack. The child "sits on the wall" as long as he or she can provide the correct answer. When he or she misses, the child who gave the card to be matched takes the stack and attempts to find the correct numeral. If successful, that child becomes Humpty Dumpty.

- -

HOT OR COLD

Purpose: To provide practice in reading a Celsius thermometer. To associate temperature with man's adjustment to it.

---

1. On a bulletin board, place three large models of a thermometer centered with elastic tape which may be adjusted to show different temperatures. These may be made from cardboard or secured from a school supply firm. At the base of the bulletin board, pin children dressed in heavy coats, light sweaters, sun suits, etc.

2. As an independent activity children adjust the temperature shown on the thermometers to -10^{o}, 10^{o}, 30^{o}. They then pin appropriately dressed children beside each thermometer.

Variation: This could be used as a flannel board activity, using thermometer models with fixed temperatures.

Symbols such as snowmen, electric fans, mittens, etc., could be provided for matching with the temperatures shown on the thermometers.

TEN PINS

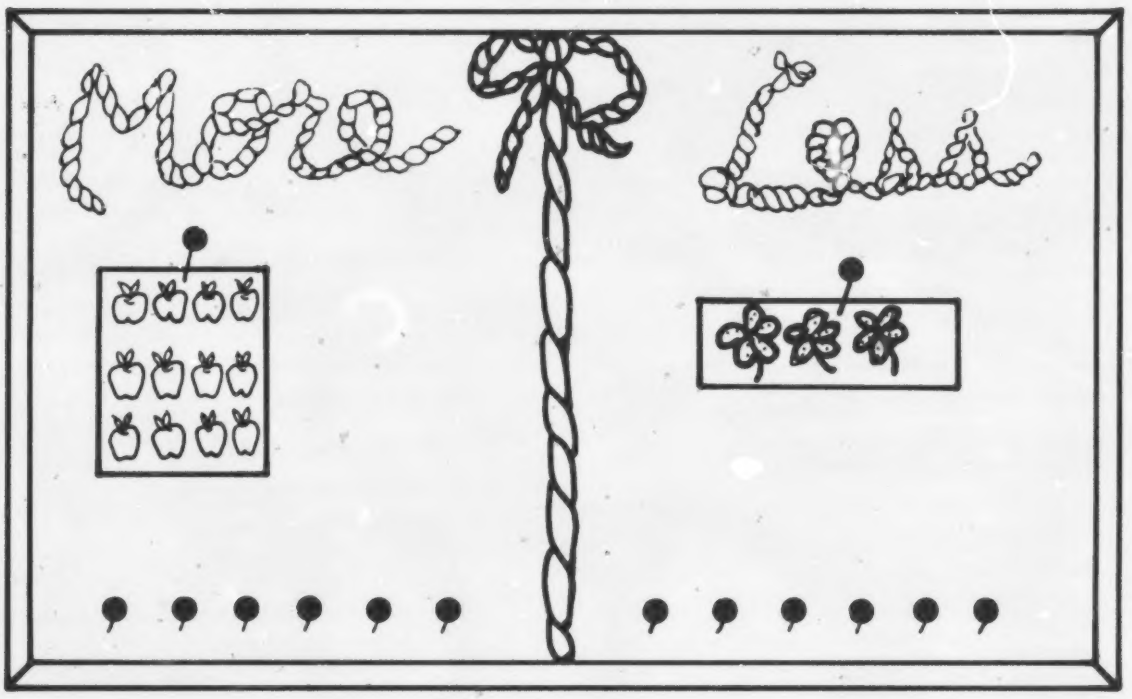
Purpose: To afford experiences and extend concept development related to numerical ordering and discrimination.

---

1. Divide a bulletin board in half by stretching a piece of brightly colored yarn down the middle. Using the same yarn, write m - o - r - e at the top of one half of the board and l - e - s - s on the other half. Stick a row of pins with brightly colored heads at the base of each side of the bulletin board.

2. Provide manila envelopes containing cards on which pictures of the objects such as balls, candy cones, apples, etc., have been drawn in numbers varying from one to twenty.

3. The child decides if the card represents "more than ten" or "less than ten" and pins it on the appropriate side of the board.



GOLD DIGGERS

Purpose: To promote numeral recognition and ordering.

---

1. Develop a small bulletin board with a rainbow and a pot for gold at each end similar to the following.

2. In a large bowl, place circles cut from heavy gold gift wrap paper. Cut numerals from one to twenty, fold, and pin each on a circle. Attach to the bulletin board a miniature toy shovel from the 5 and 10 cent store with a magnet glued to the tip. Also attach to the bulletin board a card containing straight pins.

3. As an independent activity, two children take turns "digging for gold." If, when a child secures a gold coin, the child is able not only to recognize that numeral, but can also quickly name the numerals preceding and following it, he or she pins the coin on his or her side of the rainbow. For instance, if the numeral is 9, the child says, "8 - 9 - 10." If the child cannot recognize the numeral or give the other correct numerals, the child puts the "gold" back into the bowl and loses this turn. The child with the most coins on his or her side of the board wins the game.

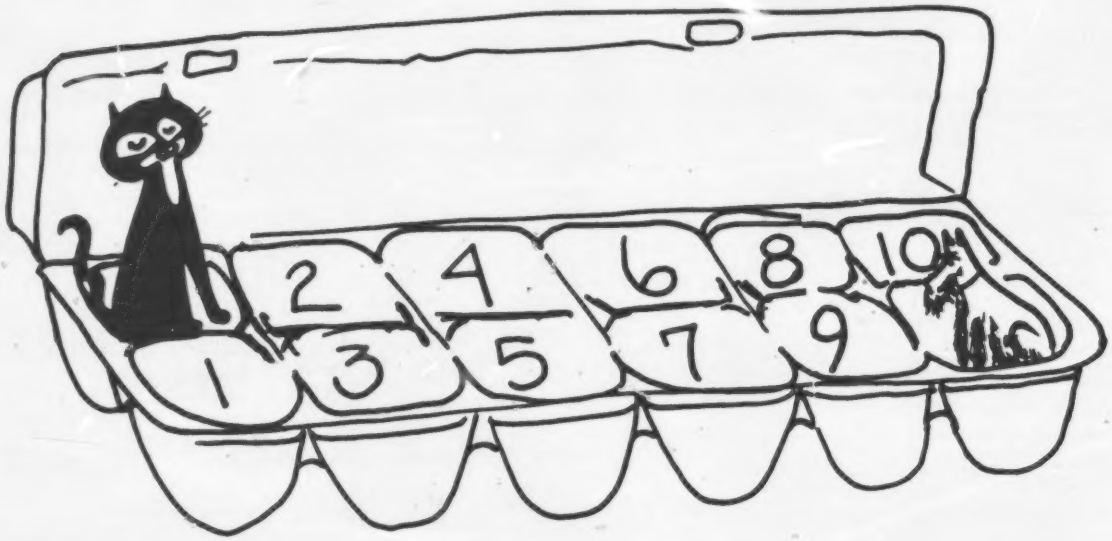
CATS AND DOGS

Purpose: To provide practice in recognizing numerals.

---

1. Number the sections of an egg carton from one to ten, leaving a section on either end unnumbered. In these two sections, draw a dog in one end and a cat in the other.

2. Children play the game by tossing a ping-pong ball into the labeled carton. If the ball goes into the dog section, the child barks. If it goes into the cat section, he or she meows. If it lands in a numbered section, the child calls the numeral.



CHESTNUTS FOR SALE

Purpose: To provide practice in counting.

---

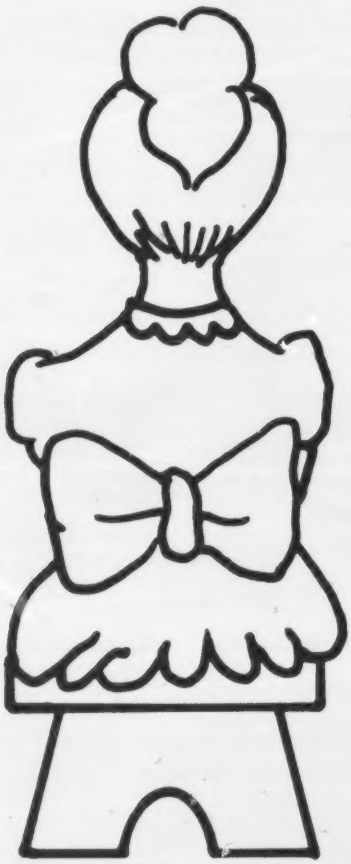
1. Children are divided into two teams.

2. Children on one team sit in a semi-circle with faces to the wall.

3. A stack of cards numbered from 1 to 20 is provided. One child from the unseated team selects the top card from the stack of number cards. He or she stands behind the first child in the semi-circle and says, "Chestnuts for sale. Will you buy my chestnuts?" and taps his numeral on the floor.

4. The seated child answers, "Yes, I will buy seven (or the correct numeral) chestnuts." If the answer is correct, the child keeps his chair and the "seller" moves back to his or her group. If not, the chair of the child giving the wrong answer is forfeited.

5. The object of the game is to unseat the seated team.



PLAYING STORE

A store in the classroom will provide young children with many meaningful experiences in problem solving, number usage, and practical application of initial number concepts. Building and stocking the store and selling and shopping will also afford opportunities for construction and dramatic activities, language development, reading, and writing readiness, and social and science skill development. Art and music activities can be correlated to enrich the curriculum, but even more important, a classroom store is just plain "fun" and can become a most exciting learning center.

The store can be changed to relate to the needs of the group as they arise and need never become a "fixed" part of the curriculum. The following types of shops or stores might be effective:

grocery store
gift shop
pet shop
florist shop
hat shop
sporting goods store
ice cream shop
art shop
country store
drug store
toy store
Christmas shop
hot dog stand
library
fix-it shop

To stimulate imagination and inspire children to creatively develop a store to suit their needs, collect the following:

baskets (all sizes, all shapes)
broomsticks
cans: coffee, vegetable, shortening, nuts, candy, etc. (Be sure to have them opened from the bottom so they look "new" on the shelf.)
clothespins, plastic in many colors
cottage cheese cartons
egg cartons
gourds
greeting cards
hats
ice cream cartons
jar lids
milk cartons
plastic fruit and vegetable containers
boxes (candy, gift, hat, stationery)
coat hangers
ribbons
shells
shirts (discarded)
shoe boxes
shoes (ladies' old high heels, sandals, etc.)
wallpaper books
wrapping paper
yarn--multi-colored
paper nut cups, cups, plates
play money
paper bags--all sizes
plastic table cloths, place mats, and doilies

(Continued on back of page)

Suggested learning experiences:

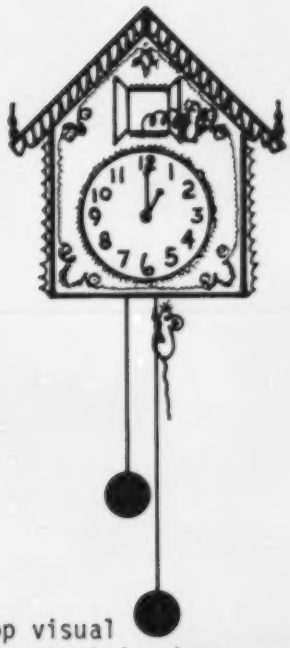
1. Group discussion and decision as to the kind of store children prefer to have--perhaps correlated with a particular subject being studied.
2. Classifying and arranging items to be sold.
3. Deciding which items will have the greatest value and assigning "prices for the items."
4. Making price tags.
5. Discussion of "clerking qualifications" and "polite customers."
6. Practice in the beginning concepts of weighing and measuring (more, less, larger, smaller, heavier, lighter).
7. Opportunity to keep simple records--number of items sold, etc.
8. Counting of profit and gaining beginning understanding of economic concepts.
9. Spending and budgeting money!

MANIPULATIVE MATERIALS

Effective aids to the initial development of mathematical concepts can be assembled easily and inexpensively. Their availability in the classroom will afford meaningful direct experiences as individually and in small groups the children handle, discuss, and experiment with them. The following items will enhance the math center and will prove to be interesting and informative:

balls, several sizes
beads, large wooden
blocks, small, medium, large
bottle tops
boxes, all sizes
calendar
cash register
clock, alarm
clock, cardboard model with movable hands
clock puzzle
cloth, scraps in assorted sizes and colors
containers, 1 qt., 1 pt., 1/2 pt., 1 L, 1/2 L, 250 mL
dowel sticks
flannel board, with felt numbers and objects
measuring cups, plastic
measuring spoons
meter stick
muffin tins
pans, assorted sizes
paper plates and cups
paper bags, assorted sizes
peg boards
play money
puzzles, geometric designs and numbers
rulers
saws, hammers, and nails
scales
scraps of lumber
stop watch
straws, plastic
string, (to be measured)
sundial
thermometer
timers (3 minute)
toy telephone

...AND STILL MORE MATH



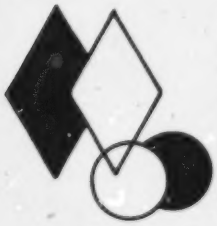
Don't forget to use the calendar and the clock every day.

These commercially marketed kits available from

Creative Playthings, Inc.
Educational Department
Princeton, New Jersey

will be extremely beneficial in helping children develop visual discrimination and refine beginning concepts related to geometric shapes.

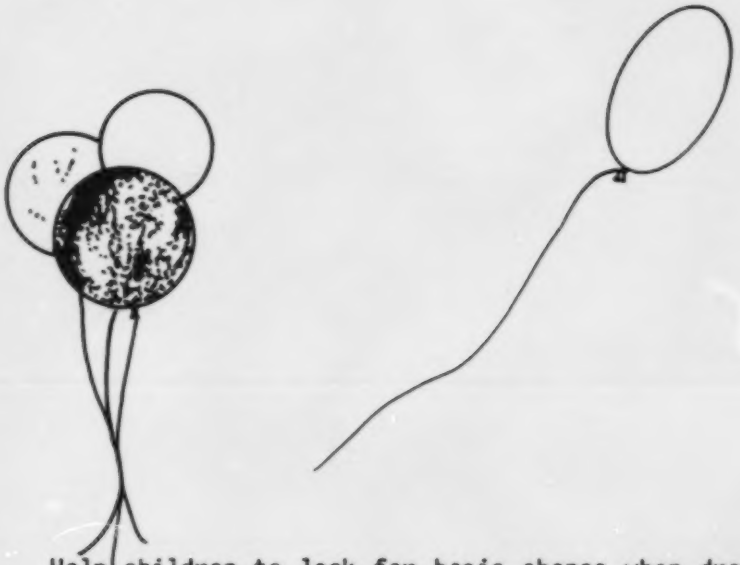
Design Cubes--25 cubes in sturdy hinged covered wooden box.
Flexagons--180 triangular and square cards for building three-dimensional forms.
Hammer/nail design board set--vari-colored, die-cut steel shapes for creating imaginative designs. Includes wall boards, hammers and a supply of nails.



Use the flannel board and objects cut from felt to help children to form beginning concepts related to dealing with sets of objects. Provide opportunity for much direct comparisons with groups of objects differing in size and shape. Give them direct experiences too in comparison of sets, counting of two sets, matching of like sets and for enlarging the idea of sets.

Cut numbers from old calendars and paste on individual squares of cardboard.

Children can use these squares to lay out on their tables in proper sequence.



Help children to look for basic shapes when drawing or reproducing objects. As they experience with circles, squares, ovals, rectangles and triangles, they will become familiar with the basic lines. They will also develop an awareness that some objects are only one shape while others may be a combination of several.

Let children make up story problems and call on other children for the answer.

Place a row of number cards in a cardholder. Have a child hide his or her eyes while a number is taken out. The child then opens his or her eyes and tries to determine the missing number.

PROBLEMS

TURTLES

Amber is 6 years old. Adeline is 3 years older than Abigail. Abigail is 4 years old. Althea is 3 years younger than Amber. Amanda is 5 years younger than Adeline.

1. Who is the youngest?
2. How many different names are in the story?
3. How old is the oldest?
4. Amber is how much older than Amanda?
5. How old is Althea?
6. How old was Amanda 4 years ago?

BRIDGING THE GAP

1. Esmeralda has nine gold teeth. She sells three of them. Later on she buys two more. Now she has five more teeth than Ermangarde.

2. How many teeth does Ermangarde have?

3. How many teeth does Esmeralda end up owning?

4. What color are Ermangarde's teeth?

5. Who is "she" in the story?

6. What does Esmeralda get in exchange for her teeth?

7. Why might it be difficult for Ermangarde to eat steak?

COUNTING CROCODILES

Nathan is not as old as Nigel. Nigel is not as old as Noah. Noah is 10 years old. Nathan, Nigel, and Noah are crocodiles. The youngest crocodile is five years younger than the oldest. Nigel's age is equal to that of Nathan subtracted from that of Noah, plus one.

1. How many years have the three crocodiles lived?
2. How old will the youngest crocodile be in three more years?
3. What is the name of the oldest crocodile?
4. How old is Nigel?
5. How much younger will Nigel be than Noah when Nigel is 12 years old?
6. If Noah lives to be 50 years old, what will the combined ages of Nathan, and Nigel be in 10 years after Noah's death.

SHARKS

Six sharks ate a total of 14 fish. Van Etten ate three. Virgil ate one less tnan Van Etten ate. Victor ate one less than Virgil ate. Vincent ate two more than Virgil ate. Video ate two less than Van Etten ate.

1. How many fish were left for Vesuvius to eat?
2. Who ate the most fish?
3. If Virgil had eaten one fish less than he did, then how many of the sharks would have eaten only one fish?
4. After all the sharks finished feeding, which one was probably the least hungry.
5. If the first shark ate one fish and each subsequent shark ate twice as many fish as the one before him, how many fish would have been eaten altogether.
6. Mr. Jones had shark steak for dinner. Van Etten, Virgil, Victor, Video, and Vesuvius are still swimming around. Who is missing?
7. If Vincent ate Virgil, then Vincent would have eaten how many more fish than did Vesuvius?

WHO'S PULLING MY LEG

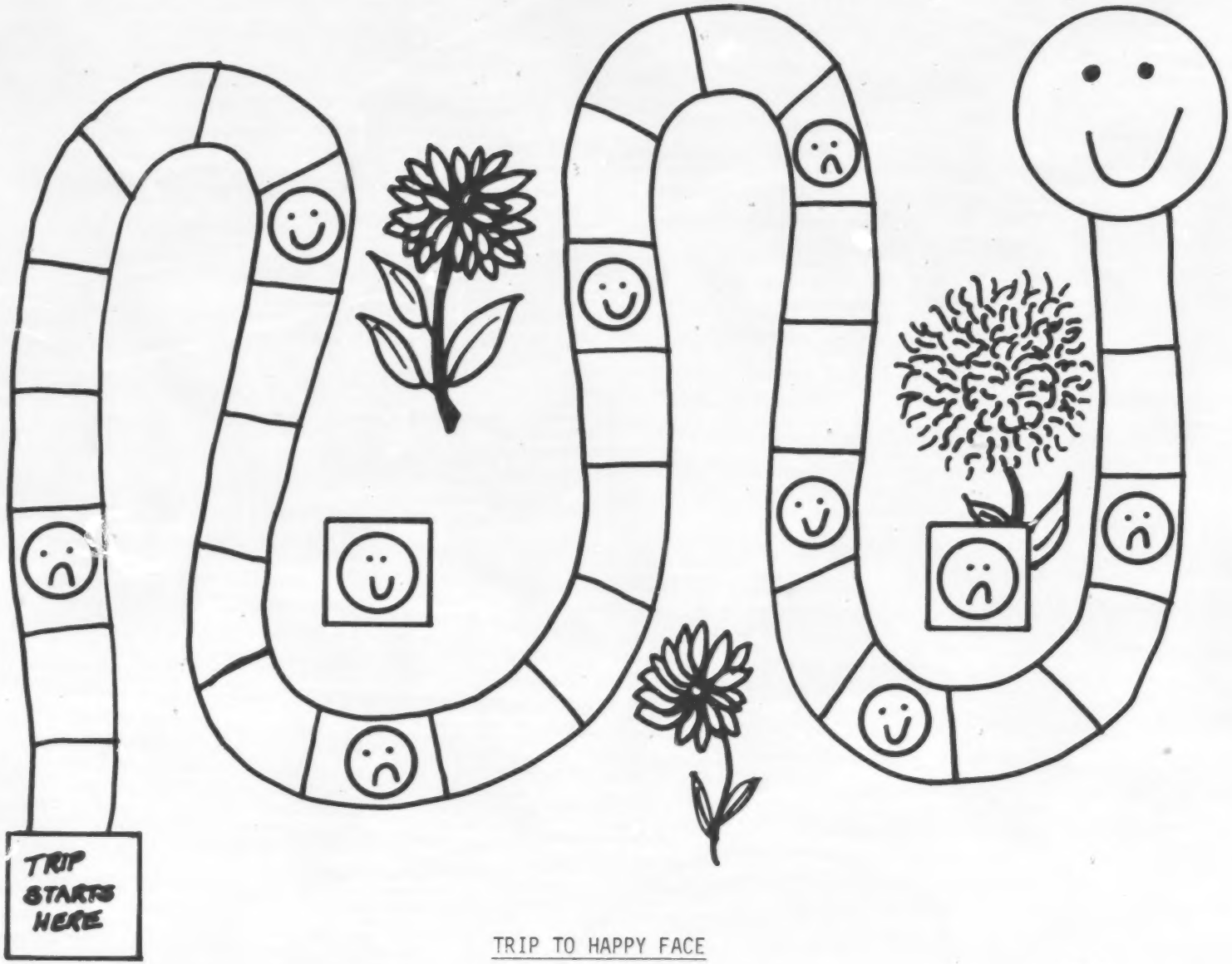
Genevieve has two legs less than Georgianna. Gwendolyn has three legs more than Genevieve. Georgianna has nine legs.

1. What is the total number of legs involved in the story?
2. What might Genevieve, Georgiana and Gwendolyn be?
3. Who has the fewest legs?
4. How many legs would Gwendolyn have if she had only half her present number?
5. If Genevieve gets another leg, how many will she have?
6. Does Genevieve have more legs or fewer legs than Gwendolyn?
7. How many legs would Gwendolyn have if she had double her present number?

MATH-O

9	5	1	20	14
4	17	18	13	8
16	10	12	7	3
19	11	6	2	15

MATH-O (Game Rules p.25)

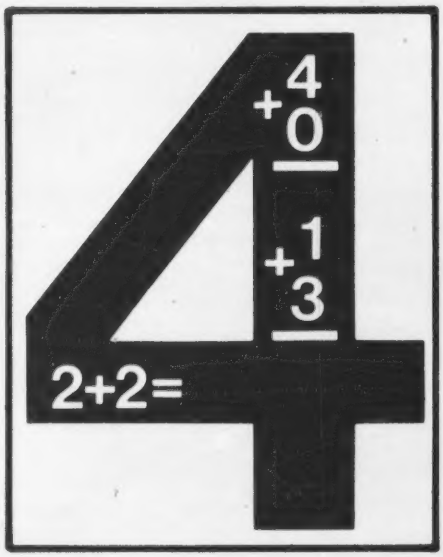


TRIP TO HAPPY FACE

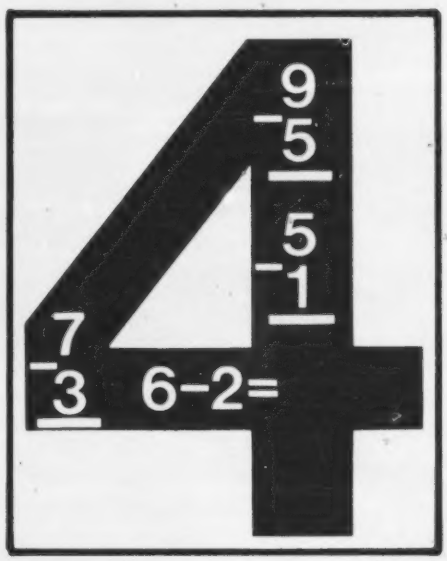
(Game Rules p.25)

NUMBER FAMILIES (Instructions p.26)

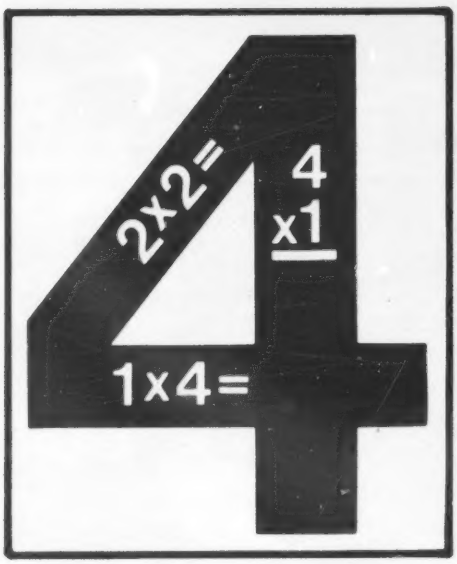
ADDITION

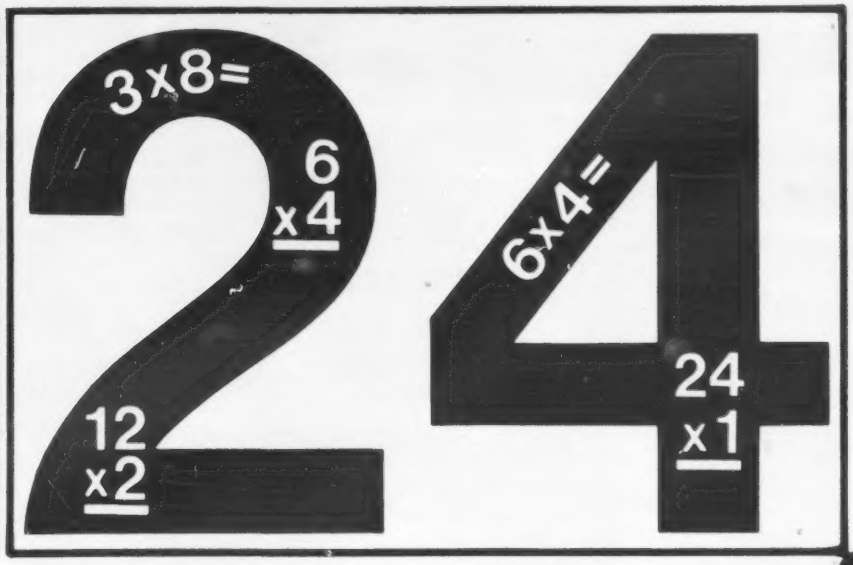


SUBTRACTION



MULTIPLICATION - GRADES 3-4





MATH-O (grades 1-2) (Game Board Illustration p.22)

Cards or ditto paper with 20 squares (4x5) marked off are passed out. Pupils put the numerals 1 through 20 in the squares in any order. The teacher shuffles a stack of cards, numbered 1-20, and as she calls out a number under "M" as in bingo, any pupil having the numeral under "M" places a counter over it. The first pupil to cover a row, or diagonal wins. New cards can be made, or pupils may exchange.

HAPPY FACE (Game Board Illustration p.23)

Make a HAPPY FACE playing board on 56x70 cm piece of railroad board. Cut eighteen 5x7 cm numeral cards. Draw a happy face on nine of these and sad faces on the other nine. Mark each of the numerals 1 through 9 on the cards in each set. A marker for each child and a die are also needed.

Directions

1. Shuffle the two sets of cards and put them in their boxes on the playing board. Each player puts his marker on the starting box.
2. The players roll the die to see who goes first. The player with the smallest number of dots goes first.
3. The first player rolls the die and counts the dots. The child moves the marker along the board that many spaces. When it stops on a face the child takes either a smiling face or a sad face, depending upon which type of face it stopped on. Numerals on smiling faces tell how far a player can advance his marker. Numerals on sad faces tell how far he must move his marker backward.
4. Play continues with players taking their turns in order.
5. The winner is the first child to reach the big happy face.

A RUMMY GAME

Purpose: To provide drill on the basic addition facts to 10. This game is for one to four players.

Materials: Seventy-one filing cards. Thirty-six of these cards will contain basic facts and 35 will contain answers.

Make separate answer and fact cards and keep these separated into two stacks, fact cards and answer cards.

Playing the Game: Deal out four fact cards to each player, who lays these cards face up. Each player examines the dealt cards to see what answers are needed. The answer cards are in a stack face down on the table. Each player takes a turn drawing an answer card. If it is the answer to one of the facts, the player places it by his or her fact card. If the card does not match, the player places it on a discard pile face up on the table. The next player can pick up this card if it is needed. The one who matches all of his or her cards first, wins the game.

CLOTHESPIN WHEEL (Illustration p.27)

Preparation:

From railroad board, cut a circle with a 15 cm diameter for each player. Mark each wheel as shown. Make a set of ten clothespins for each player. Write "0" on one, "1" on another, and so on to "9" on the last one. Three dice are needed.

Directions:

1. Each player has a wheel. Put all the clothespins in a box and mix them. Each player takes a set of ten clothespins from the box without regard to the numerals on them.
2. The leader rolls the dice. The leader counts the dots and tells how many there are. This number is the sum for the first round.
3. Each player clips one of the clothespins onto the card so the sum of the numerals of the clothespin and the numeral on the card equal the sum shown on the dice. If a player does not have a clothespin to put on the wheel to make a sum for the round, he or she waits for the next round.
4. The leader tosses the dice again and counts the dots. This number is the sum for the second round.
5. Each player again clips a clothespin onto his or her card.
6. The game continues until ten rounds are completed.
7. The winner is the player who has clipped the most clothespins to the card.

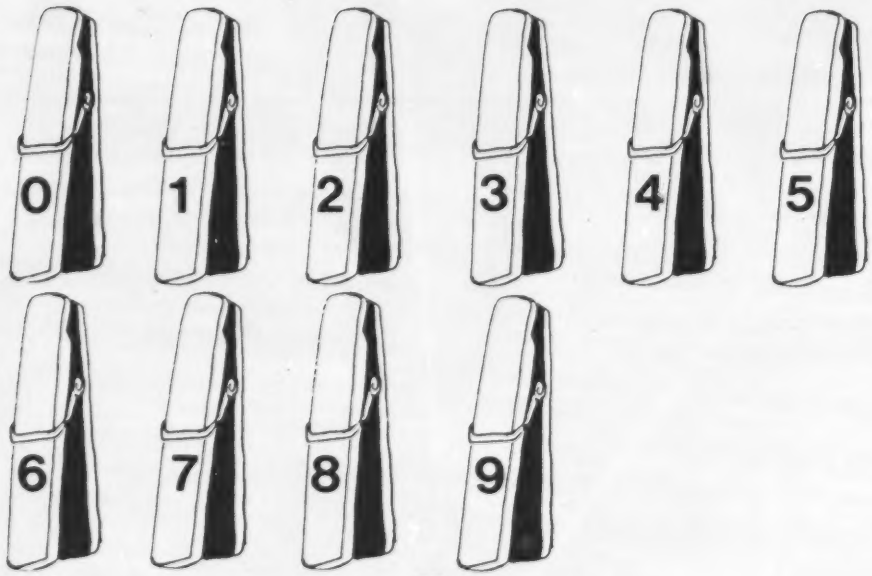
NUMBER FAMILIES (grades 1-3) (Illustration p.24)

Cut a numeral from paper and have pupils place various combinations (renaming of the number) on it. Usually used for basic facts. Could be displayed for visual reference.

CLOTHESPIN WHEEL

(Instructions p.26)

CLOTHESPIN WHEEL



MAGNETIC MULTIPLICATION TABLE (2 players) (Illustration p.29)

Preparation:

Make a playing board on a piece of 56 by 70 cm railroad board so that there are 121 squares formed by eleven columns and eleven rows. Put an X (for multiplication) in the upper, left-hand corner. Write the numerals 0 through 9 in the column below and the row next to the X. Put a square piece of magnahold paperboard (each side 2.5 cm) in the center of each remaining square. Cut one hundred squares of railroad board (each side 4 cm) for product cards. Mark these so each contains one of the products for a basic multiplication combination. Make four squares (each side 4 cm) and write "wild card" on each one. Put a piece of magna tape on the back of each piece.

Directions:

1. Put the playing board on a bulletin board or in a chalk rail.

2. The players mix the product cards and put them face down near the board.

3. Each player draws seven product cards. A player does not show the drawn cards to the opponents.

4. The first player selects one of his or her cards and puts it on the playing board in a square where it is the product of the column and row numbers which meet there.

5. The next player has a play if one of his or her cards can be put in any of the squares that touch the square containing the first product card. For example, if the first player puts a 6 on the board, the second player can play any of these products: 2, 3, 4, (two places), 8, 12, 9, or another 6. If the second player has none of these products, he or she draws from the face-down cards until one is drawn.

6. If a player has a wild card, it can use it instead of drawing product cards, if he wishes. These cards are used to open play in a new part of the game board. If and when a player wants to use a wild card, he or she shows it to the other players. Then the player selects one of his product cards and puts it on the game board. After a wild card has been used it is removed from the game. A player who uses a wild card must draw a replacement for it from the pile of product cards.

7. Play continues with each player taking turns in order.

8. The winner is the player who gets rid of his or her cards first.

MAGNETIC MULTIPLICATION TABLE

(2-4 Players)

(Instructions p.28)

X	0	1	2	3	4	5	6	7	8	9
0										
1										
2										
3										
4										
5										
6										
7										
8										
9										

DOMINO CARDS (grades 1-2) (Illustration p.31)

Domino Cards can be used successfully for teaching addition and subtraction facts. 20 cm by 10 cm tag board can be used, and dot patterns can be put on with a magic marker.

JUMP ALL BUT THE LAST PUZZLE (grades 4-6) (Illustration p.32)

The game shown is played by jumping markers (checkers, markers, or pegs) as in checkers. The object is to remove as many markers as possible. You win if you only have one left.

The puzzle may be varied by leaving different positions open. Acoustical tile with holes or a board with holes drilled can be used.

DON'T TAKE THE LAST GAME (grades 4-6) (Illustration p.32)

The game is played by two players, who take turns picking up the markers. A player takes any number of markers from one row (from one to all). The object of the game is to leave your opponent the last marker.

KEY: 1 - if there are markers on all three rows, you remove markers from one row to keep them unequal. Maintain this policy until there is only one marker on two rows. If at any time your opponent leaves two rows with the same number, remove all the markers from the other row.

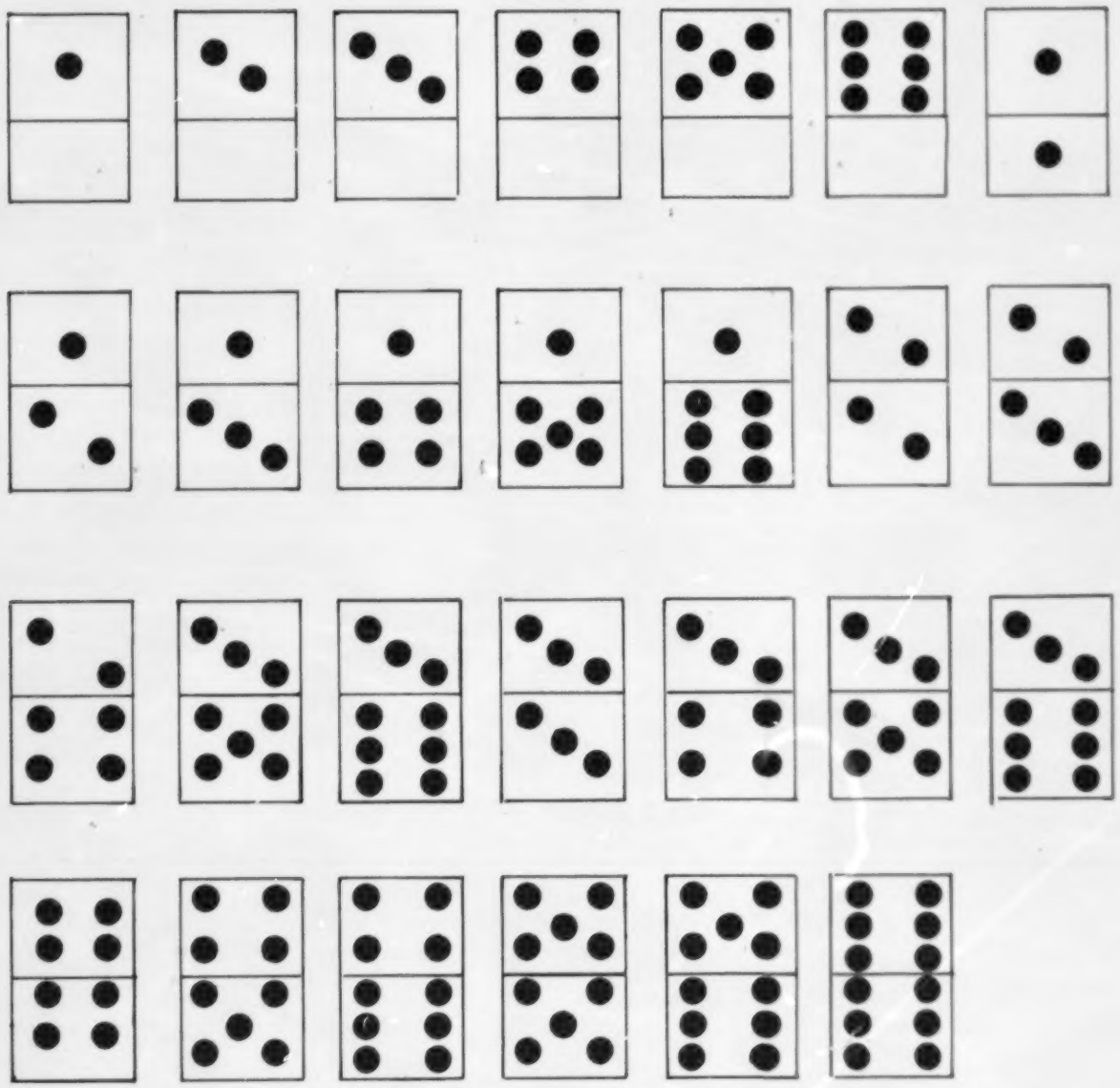
2 - when there are markers on two rows, remove a number of markers that will leave both rows equal. Continue until there are two markers on each row.

SCRAMBLE (grades 1-4)

Teams of ten players are selected. Each team is given a set of cards numbered from 1 to 10 to be distributed among its members. When the teacher calls a number (say 37), the holders of the 3 and 7 cards must "Scramble" to the front of the room and face the class holding their numbers in the correct order or 37. The first team to do this would win a point. The numbers picked by the teacher would be determined by the level of the class.

DOMINO CARDS

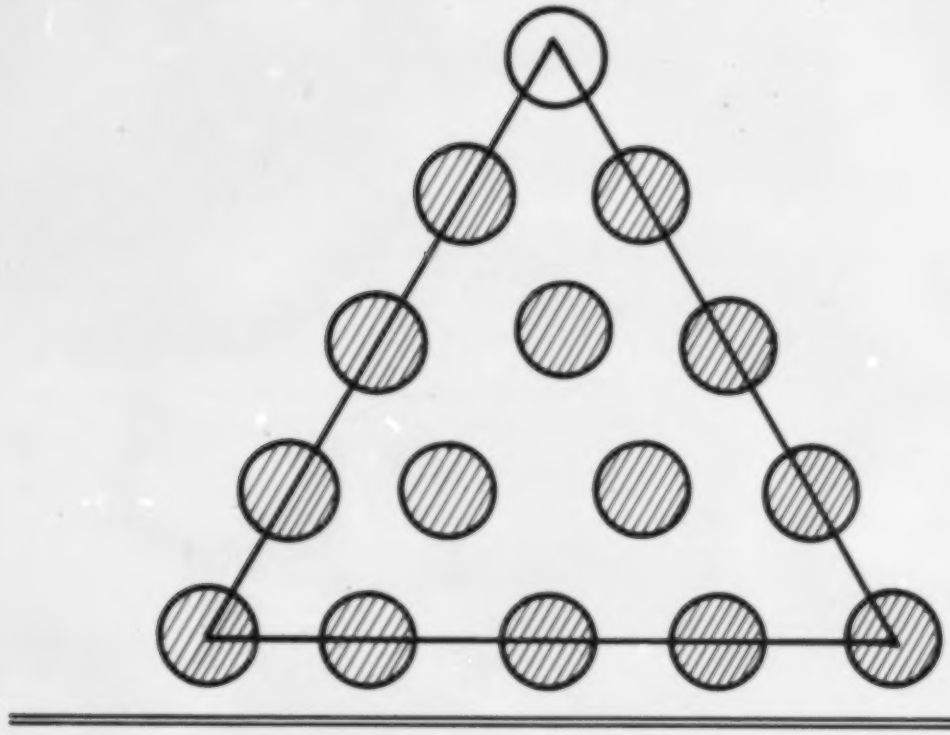
(Instructions p.30)

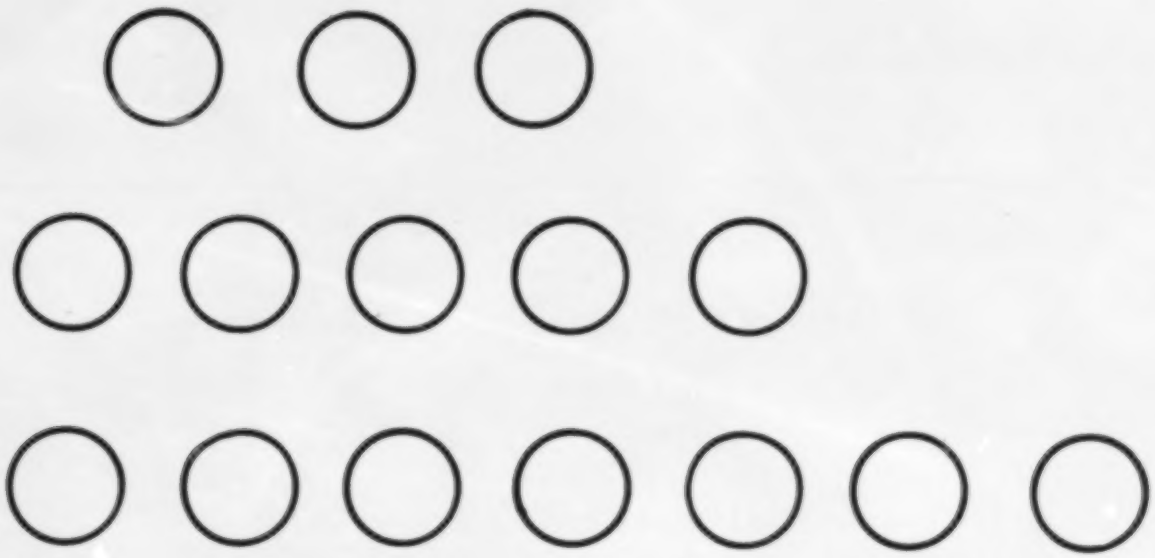


DOMINO CARDS

JUMP ALL BUT THE LAST

(Instructions p.30)





DON'T TAKE THE LAST (Instructions p.30)